

May 15, 2012

**To:** Members of the Energy and Technology Committee

**From:** John Biernbaum, Professor of Horticulture, Michigan State University  
Haslett, Michigan 48840

**Regarding:** Request for Consideration Relative to Opposition of House Bills 4265 and 4266.

Good Afternoon. I would like to thank Chairman Nofs and the other members of the committee for providing the opportunity to speak today. My name is John Biernbaum and I am a Professor of Horticulture at Michigan State University. Today I am speaking as a citizen of Michigan from my experience with composting, not as a representative of the university. My expertise includes research experience in composting as a tool for farming including cycling of nutrients in food and small-scale intensive year-round organic farming such as urban agriculture. I am also a board member of the Michigan Organic Food and Farm Alliance; an instructor for courses on Compost Production and Use, Organic Farming Principles and Practices, and Greenhouse Structures and Management; the faculty coordinator of the MSU Student Organic Farm; and a member of the recently formed MSU Center for Regional Food Systems. I am speaking today in opposition to the proposal.

In preparation for attending the session today I was able to read and review some of the written recommendations presented to the House Committee. It is obvious that there are diverse perspectives on this issue. I was taught that when evaluating proposals with multiple perspectives it helps to remember that most every idea has some truth or value and a good place to start is to look for the value and truth. A number of organizations presented the perspective that energy could be captured if yard waste was placed in landfills with the ability to capture methane. This appears to be a true and valuable perspective.

While many ideas have some truth and value, they are often incomplete. Perhaps the implications or unintended consequences of the idea often have not been adequately considered. While yard waste can provide methane production, doing so only captures a fraction of the value of the yard waste if it is used in other ways. The carbon compounds in organic materials like yard waste hold the energy of the sun captured by photosynthesis. While there is a growing movement to capture that energy in the form of biofuels like methane and ethanol, that energy is also essential to maintaining the billions of microorganisms in every handful of soil that maintain soil quality and fertility and provide our food.

Industrial farming relies primarily on manufactured or processed mined soluble fertilizers to replace nutrients removed by crops from the soil. We have learned over the last 60 years that fertilizers from bags do not adequately provide the essential component of organic matter that feeds soil microorganisms and provides the humus or long term "glue" that binds the soil particles together to prevent soil loss from wind and water erosion. Soil erosion and flooding are obvious concerns around the world. Decayed organic matter in the soil also acts as a sponge to hold water so it is available for plants. It also acts like a magnet to hold important minerals essential for plants in a way that the minerals are available to plants and do not wash away. Recycling organic matter in the soil is a foundational principle to farming. While compost is currently applied to less than 1% of agriculture land, it is one of the fastest ways to improve soil and mineral availability.

The other essential value in plant and crop residue like yard waste is the minerals that are biologically recycled for future plant growth. By placing organic matter in a land fill, the essential nutrients like nitrogen, phosphorus, potassium, calcium, magnesium and many others are lost and wasted. As the sources of readily available mined minerals are used up, and fossil fuel availability decreases and cost increases, we must rely on a cycling of locally available minerals/nutrients. Yard "waste" made into compost is one such source of local minerals.

The essential need today is to keep yard waste out of landfills. In the near future some of you will be considering how we can collect the millions of tons of food "waste" dumped in landfills or sent to sewage treatment plants so it too can be recovered to provide the minerals for future farming. Michigan State University and many other universities across the country are looking at how to efficiently process food "waste" to capture both energy and nutrients so they can be returned to our farms for future generations. An immediate need is to stop describing these organic materials as "waste" and to see them as a valuable mineral resource.

I work with a wide variety of farmers including market gardeners who use small plots for intensive year round production of fruit and vegetables. This growing area of agriculture benefits greatly from the use of compost to provide the intensive production and multiple harvests from small spaces. Compost can also be used to make the use of peatmoss by our Michigan greenhouse and nursery industries more efficient and economical.

When choosing between diverse perspectives it is also important to remember that any idea, no matter how valuable or complete, if applied to the extreme, will become pathological. Please consider the situation at hand and seek a decision that provides for the greater long term good. All organic matter is not suitable for converting to energy. Energy and minerals are needed in the soil. Some organic materials placed in an anaerobic digester can capture the energy in methane and also capture the nutrients and residuals for recycling into agriculture. MSU is testing a research anaerobic digester for processing animal manure and food waste and is developing plans for a larger digester. The university is also funding composting and wormcomposting research as a method to recycle nutrients from food back to the farm.

As you seek to decide a course of action on House Bills 4265 and 4266, please consider as many implications and consequences as possible and make a choice that will support the long term needs of agriculture for our children over the short term economics of renewable energy.